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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,336	01/09/2004	Fumihiko Aiga	247553US2	7109

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EXAMINER	
NGUYEN, LINH V	

ART UNIT	PAPER NUMBER
2819	

DATE MAILED: 08/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/753,336	AIGA ET AL.	
	Examiner	Art Unit	
	Linh V. Nguyen	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/09/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to application No. 10/753,336. Claims 1 – 22 are pending on this application.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 – 18, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda U.S. Patent No. 6, 3000,849.

Regarding claim 1, Fig. 6 of Takeda discloses a filter circuit comprising: a complex block (83a) which realizes a complex zero of a transfer function (Col. 12 lines 22 – 28); a real/pure imaginary block (84a) which realizes a real zero of a transfer function and a pure imaginary zero of the transfer function (Col. 12 lines 46 – 58); and a single path (79a) circuit which couples the complex block (83) with the real/pure imaginary block (84) through a single-path.

Regarding claim 2, wherein the complex block comprises: a first end resonator (89a); a first resonator that (18a) is coupled to the first end resonator; a second resonator (19a) that is coupled to the first resonator (18a); a third resonator (20a) that is coupled to the second resonator (19a); a fourth resonator (21a) that is coupled to the third resonator (20a); and a second end resonator (86a) that is coupled to the fourth resonator (21a); and a coupling (13a) between the first end resonator (85a) and the second end resonator (86a), a coupling between (10a, 11a, 12a) the first resonator (18a) and the fourth resonator (21a), and a coupling (11a) between the second resonator (19a) and the third resonator are in phase (Col. 3 lines 41 – 45).

Regarding claim 3, wherein the real/pure imaginary block (complex block 83a is also a real/imaginary block because it realized real zero and imaginary zero) comprises: a third end resonator (89a); a fifth resonator (18a) that is coupled to the third end resonator (89a); a sixth resonator (19a) that is coupled to the fifth resonator; a seventh resonator (20a) that is coupled to the sixth resonator; an eighth resonator (21a) that is coupled to the seventh resonator; and a fourth end resonator (86a) that is coupled to the eighth resonator (21a); and among a coupling (13a) between the third end

resonator and the fourth end resonator, a coupling between the fifth resonator (18a) and the eighth resonator (13a also is a coupling between fifth and eighth resonators), and a coupling (11a)between the sixth resonator and the seventh resonator, one set of adjacent ones is in phase (Col. 3 lines 41 – 45).

Regarding claim 4, wherein the real/pure imaginary block (complex block 83a is also a real/imaginary block because it realized real zero and imaginary zero; See Col. 3 lines 41 – 45) comprises: a third end resonator (89a); a fifth resonator (18a) that is coupled to the third end resonator (89a); a sixth resonator (19a) that is coupled to the fifth resonator; a seventh resonator (20a) that is coupled to the sixth resonator; an eighth resonator (21a) that is coupled to the seventh resonator; and a fourth end resonator (86a) that is coupled to the eighth resonator (21a); and among a coupling (13a) between the third end resonator and the fourth end resonator, a coupling between the fifth resonator (18a) and the eighth resonator (13a also is a coupling between fifth and eighth resonators), and a coupling (11a)between the sixth resonator and the seventh resonator, one set of adjacent ones are in anti-phase

Regarding claim 5, Fig. 6 of Takeda further disclosing: a second complex block which realizes a complex zero of a transfer function (18a, 19a, 20a, 21a are presenting multiple complex blocks)

Regarding claim 6, wherein the coupling between the first end resonator and the first resonator is larger than the coupling between the fourth resonator and the second end resonator (since the coupling between 89a and 18a is a direct coupling and

coupling between 19a and 21a are coupling vias 11a and 12a; therefore direct coupling between 89a and 18a must be stronger than coupling between 19a and 21a).

Regarding claim 7, the claim incorporated similar subject matter as of claim 1, and rejected along the same rationale.

Regarding claim 8, wherein the real block comprises: a third end resonator (89a); a fifth resonator (18a) that is coupled (85a) to the third end resonator (89a); a sixth resonator (19a) that is coupled to the fifth resonator (18a); and a fourth end resonator (86a) that is coupled (vias 11a, 12a) to the sixth resonator; and a coupling (13a) between the third end resonator and the fourth end resonator, and a coupling (10a) between the fifth resonator (18a) and the sixth resonator are in phase (Col. 3 lines 41 – 45).

Regarding claim 9, Fig. 6 further comprising: a pure imaginary block which realizes a pure imaginary zero of a transfer function (84a)

Regarding claim 10, Fig. 6further comprising: a second single path circuit (79a), which couples the complex block (83a) with the pure imaginary block (84a) through the single-path.

Regarding claim 11, the claim incorporated similar subject matter as of claim 1, and rejected along the same rationale.

Regarding claim 12, wherein the pure imaginary block comprises: a third end resonator; a fifth resonator that is coupled to the third end resonator; a sixth resonator that is coupled to the fifth resonator; and a fourth end resonator that is coupled to the sixth resonator; and a coupling between the third end resonator and the fourth end

resonator, and a coupling between the fifth resonator and the sixth resonator are in anti-phase (Col. 3 lines 47 – 50).

Regarding claim 13, further comprising: a real block, which realizes a real zero of a transfer function (Col. 12 lines 52 – 55).

Regarding claim 14, Fig. 6 further comprising: a second single path (79a) circuit, which couples the real block with the pure imaginary block through a single-path (79a).

Regarding claim 15, the claimed incorporated similar subject matter as of claim 1, and rejected along the same rationale.

Regarding claim 16, the claim incorporated similar subject matter as of claim 2 and rejected along the same rationale

Regarding claim 17, Fig. 6 [83a] as applied to claim 15 above is ether a first or second block, therefore wherein the second complex block (83a) comprises: a fifth end resonator (89a); a seventh resonator (18a) that is coupled to the fifth end resonator (89a); an eighth resonator (19a) that is coupled to the seventh resonator; a ninth resonator (20a) that is coupled to the eighth resonator; a tenth resonator (21a) that is coupled to the ninth resonator; and a sixth end resonator (86a) that is coupled to the tenth resonator; and a coupling (13a) between the fifth end resonator and the sixth end resonator, a coupling (13a) between the seventh resonator and the tenth resonator, and a coupling (11a) between the eight resonator and the ninth resonator are in phase (Col. 3 lines 41 – 45).

Regarding claim 18, Fig. 6 discloses a filter circuit having a pass amplitude characteristic with a predetermined pass band, comprising: a first circuit (84) which

realizes attenuation poles on both sides of the predetermined pass band in the pass amplitude characteristic (Col. 4 lines 23 – 24); and a second circuit (83) which realizes a flat group delay characteristic in the pass band (Col. 4 lines 24 – 25); wherein the first circuit and the second circuit are coupled with a single path (79a); the second circuit (83) comprises: a first end resonator (18a); a first resonator that is coupled to the first end resonator (89a); a second resonator (19a) that is coupled to the first resonator; a third resonator (20a) that is coupled to the second resonator; a fourth resonator (21a) that is coupled to the third resonator; and a second end resonator (86a) that is coupled to the fourth resonator; and a coupling (13a) between the first end resonator and the second end resonator, a coupling (13a) between the first resonator (18a) and the fourth resonator (21a), and a coupling (11a) between the second resonator (19a) and the third resonator (20a) are in phase (Col. 3 lines 41 – 45).

Regarding claim 21, wherein the first circuit (84) comprises: a third end resonator (14a); a fifth resonator (22a) that is coupled to the third end resonator (14a); a sixth resonator (23a) that is coupled to the fifth resonator (22a); and a fourth end resonator (node between 24a and 17a) that is coupled to the sixth resonator (24a); and a coupling (17a) between the third end resonator (14a) and the fourth end resonator, and a coupling between the fifth resonator and the sixth resonator (node between 24a and 17a) are in anti-phase (Col. 3 lines 47 – 50).

Regarding claim 22,wherein the first circuit and the second circuit include a plurality of resonators (Fig. 6 [18a-24a]); and at least one of the plurality of resonators

formed by a superconductor (See "superconducting micro strip filter" first line on right column of the front page disclosed by Takeda).

5. Claims 18 - 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda U.S. Patent No. 6,559,741.

Regarding claim 18, Fig. 9 discloses a filter circuit having a pass amplitude characteristic with a predetermined pass band, comprising: a first circuit (61) which realizes attenuation poles on both sides of the predetermined pass band in the pass amplitude characteristic (Col. 8 lines 8 - 20); and a second circuit (62) which realizes a flat group delay characteristic in the pass band (Col. 8 lines 8 - 20); wherein the first circuit and the second circuit are coupled with a single path (22); the second circuit (83) comprises: a first end resonator (node between 33 and 55); a first resonator (55) that is coupled to the first end resonator (node between 33 and 55); a second resonator (56) that is coupled (39) to the first resonator (55); a third resonator (57) that is coupled (34) to the second resonator (56); a fourth resonator (58) that is coupled (40) to the third resonator (57); and a second end resonator (node between 58 and 33) that is coupled to the fourth resonator (58); and a coupling (33) between the first end resonator and the second end resonator, a coupling (33) between the first resonator (55) and the fourth resonator (58), and a coupling (34) between the second resonator (56) and the third resonator (57) are in phase (coupling j is a 90 degree in phase coupling).

Regarding claim 19, wherein the first circuit (61) comprises: a third end resonator (node between 39 and 51) a fifth resonator (51) that is coupling to the third end

resonator (node between 39 and 51); a sixth resonator (52) that is coupled to the fifth resonator (51); a seventh resonator (53) that is coupled to the sixth resonator (52); an eighth resonator (54) that is coupled to the seventh resonator (53); and a fourth end resonator (node between 54 and 39) that is coupled to the eighth resonator (54)and among a coupling (39) between the third end resonator and the fourth end resonator, a coupling (39) between the fifth resonator and the eighth resonator, and a coupling (30) between the sixth resonator and the seventh resonator, one set (52, 53) of adjacent ones is in phase (+j coupling of one set [51, 54] is a in phase coupling respect to +j coupling of one set [51, 52]).

Regarding claim 20, wherein the first circuit (61) comprises: a third end resonator (node between 39 and 51) a fifth resonator (51) that is coupling to the third end resonator (node between 39 and 51); a sixth resonator (52) that is coupled to the fifth resonator (51); a seventh resonator (53) that is coupled to the sixth resonator (52); an eighth resonator (54) that is coupled to the seventh resonator (53); and a fourth end resonator (node between 54 and 39) that is coupled to the eighth resonator (54)and among a coupling (39) between the third end resonator and the fourth end resonator, a coupling (39) between the fifth resonator and the eighth resonator, and a coupling (30) between the sixth resonator and the seventh resonator, one set (52, 53) of adjacent ones is in phase or anti-phase (-j coupling of one set [52, 53] is a anti-phase coupling to +j coupling of one set [51, 54]).

Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Robert Pascal can be reached at (571) 272-1769. The fax phone numbers for the organization where this application or proceeding is assigned are (571-273-8300) for regular communications and (571-273-8300) for After Final communications.

08/23/05

Linh Van Nguyen

Art Unit 2819